PME6J002 COMPUTER INTEGRATED MANUFACTURING & FMS

(PROFESSIONAL ELECTIVE)

MODULE – I (14 HOURS)

Fundamentals of Manufacturing and Automation: Production systems, automation principles and its strategies; Manufacturing industries; Types of production function in manufacturing; Automation principles and strategies, elements of automated system, automation functions and level of automation; product/production relationship, Production concept and mathematical models for production rate, capacity, utilization and availability; Cost-benefit analysis.

Computer Integrated Manufacturing: Basics of product design, CAD/CAM, Concurrent engineering, CAPP and CIM.

MODULE – II (14 HOURS)

Industrial Robotics: Robot anatomy, control systems, end effectors, sensors and actuators; fundamentals of NC technology, CNC, DNC, NC part programming; Robotic programming, Robotic languages, work cell control, Robot cleft design, types of robot application, Processing operations, Programmable Logic controllers: Parts of PLC, Operation and application of PLC, Fundamentals of Net workings; Material Handling and automated storage and retrieval systems, automatic data capture, identification methods, bar code and other technologies.

MODULE – III (16 HOURS)

Introduction to manufacturing systems: Group Technology and cellular manufacturing, Part families, Part classification and coding, Production flow analysis, Machine cell design, Applications and Benefits of Group Technology.

Flexible Manufacturing system: Basics of FMS, components of FMS, FMS planning and implementation, flexibility, quantitative analysis of flexibility, application and benefits of FMS.

Computer Aided Quality Control: objectives of CAQC, QC and CIM, CMM and Flexible Inspection systems.

TEXT BOOKS :

1. Automation, Production Systems and Computer Integrated Manufacturing: M.P. Groover, Pearson Publication.
2. Automation, Production systems & Computer Integrated Manufacturing, M.P Groover, PHI.
3. CAD/CAM/CIM, P.Radhakrishnan, S.Subramanyam and V.Raju, New Age International
4. Flexible Manufacturing Systems in Practice, J Talavage and R.G. Hannam, Marcell Decker

REFERENCE BOOKS:

1. CAD/CAM Theory and Practice, Zeid and Subramanian, TMH Publication
2. CAD/CAM Theory and Concepts, K. Sareen and C. Grewal, S Chand publication
3. Computer Aided Design and Manufacturing, L. Narayan, M. Rao and S. Sarkar, PHI.
4. Principles of Computer Integrated Manufacturing, S.K.Vajpayee, PHI
5. Computer Integrated Manufacturing, J.A.Rehg and H.W.Kraebber, Prentice Hall